FSB Role Description – FSW Development Engineer (DE)

Roles & Responsibilities

- Designs, develops and documents FSW components. Designs, develops and executes rigorous component-level unit tests which verify successful implementation of FSW requirements at the unit level.

- Reports directly to the FSW Development Team Lead.

- Performs all assignments according to FSW Branch Processes, Standards, and Guidelines as defined in the assigned FSW Product Plan, CM Plan and other driving documents (e.g., Unit Test Standard).
  [In the event that Project-unique processes are to be followed for some reason, the exceptions from Branch practices are required to have been identified in the FSW Product Plan for that FSW team; and the Product Plan must have been approved by FSW Branch management.]

- Provides recommendations to the FSW Branch Standards CCB regarding desired improvements to approved and draft FSW Branch practices. Identifies the need for new FSW development, test, operations, and maintenance standards and processes.

- Contributes to the wording accuracy, completeness, internal consistency, lack of ambiguity and testability of FSW requirements and interface definitions.

- Develops a detailed understanding of the language(s), compilers, linkers, CM and DCR tools, etc. Assists in the definition, development and usability of the FSW development environment including hardware and software tools that will improve the FSW development, test, documentation and maintenance processes.

- If relevant, develops a detailed understanding of the target hardware architecture including the instruction set, memory constraints, interrupt system, real-time monitoring hardware and software, and bus interfaces.

- If relevant, develops a detailed understanding of the GN&C, power, RF communications, antenna, etc. hardware specifications, interface definitions, algorithms, operations concepts, etc.

- Becomes familiar with and configures the FSW test beds and ground database as needed to perform integration, build or system level testing. Participates in FSW Build Integration tests on the target hardware using the ground system and simulators, as requested.

- If a DCR is not already written, uses the FSW team DCR system to document changes to design and code once a FSW component has been initially delivered to the FSW build test team. No changes to FSW are to be made without DCR documentation once the build test team has begun testing on that component. Besides representing good engineering practices, this is a courtesy to the FSW test team, which needs to be aware of changes to FSW that might impact FSW test procedures or results.

- Requests the FSW test team to write each FSW DCR that results from a FSW test team activity. This is to ensure that problems and change recommendations initiated by the FSW test team are clearly available for metrics from the DCR tracking system.

- Supports the FSW test team to facilitate their understanding of the FSW requirements, design, code and intended behavior. Trains selected test team members in the configuration and use of the test bed(s) and FSW support tools needed to perform tests.

- Actively participates in FSW requirements, design, code and unit test walk-throughs for both the assigned FSW team and related FSW teams as

requested (e.g., C&DH and ACS collaborative walk-throughs).

- Actively participates in FSW build and system test scenario and procedure walk-throughs for the assigned FSW team and related FSW teams as requested.

- Prepares and presents material for FSW reviews as requested.

- Supports hardware/software tests (including I&T) plus launch preparation simulations, early operations, and FSW maintenance team preparation. Supports Project, other mission subsystem and Flight Operations staff members are requested.

- Assists in the preparation of software development schedules. Provides accurate and routine status of assigned and scheduled tasks. Prepares for and participates in all required meetings (status, engineering discussions, training, etc.).

- Employs the same rigor to the implementation of FSW requirements changes and design/code fixes as is done for initial FSW development assignments.

- Meets deadlines.

- Actively and routinely contributes to FSW end-product quality and risk mitigation. Notifies team lead(s) and FSW Branch management, as appropriate, of issues, problems, concerns or other observations that could result in risk to the overall quality of the end-product FSW system.

- As a member of a multi-person FSW development and test team, demonstrates positive and tangible initiative toward overall team success (beyond personal assignments).

Ownership and Approval Authority

The FSW Branch Head is the owner of this role description. The FSB Standards CCB has approval authority.

Change History

Version	Date	Change
1.1	06/28/04	DCR #75 – change name from Position Description to Role Description.
1.0	01/27/04	Initial draft.